

# **NEM 2.0 for Arizona**

## **Why RUCO's policy for rooftop PV is good for the solar industry and non-solar residential ratepayers**

### **Summary:**

RUCO is recommending a market-based fixed charge on every new residential solar customer's bill.

RUCO looks at the current level of compensation provided through residential retail rates and recalibrates it through a modification of the lost fixed cost recovery (LFCR) adjuster. By using the LFCR adjuster RUCO is able to send price signals to solar adopters without needing to modify the rates used by the majority of non-solar residential ratepayers.

RUCO designed this policy to acknowledge the value of services provided to the grid and by the grid. Currently the policy only looks at capacity value but it can be expanded to include voltage and VAR support, firm power, and other services.

### **Findings:**

Retail rates are not designed to properly reward or discount key attributes of customer sited technologies. There has been a drive to send conservation signals through time-of-use (i.e. "peak" and "off-peak") rates which helps, but may lead to over compensation especially during "super peak" times. Conversely, the movement to higher minimum bills and fixed charges can under compensate the system owner as the kWh offset is too low.

While a benefit and value buildup of rooftop solar might yield compensation higher than retail rates, a small scale (1-5MW) wholesale distributed generation (DG) power purchase agreement (PPA) should provide a soft cap on the level of compensation for these benefits that both technologies equally offer. More solar for less money should be the aim. This underscores RUCO's approach. We set out to ensure that compensation through retail rates is in line with other forms of solar and that near term cost shifts are balanced by long-term savings to all utility customers.

For APS residential rates, RUCO first identified the cost shift through an in-depth bill gap analysis that found the average fixed costs a customer pays before and after solar. Second, we analyzed the benefits. We used a WECC based model to calculate the levelized cost of energy from a deferred combustion turbine out in 2017 when APS needs new generation. We applied the marginal capacity value of solar PV (~45%) to this figure. We stripped out fuel and also looked at transmission benefits as outlined in the APS commissioned SAIC study.

In the end, the benefits cover some, but not all, of the cost shift. However, a \$3/kW charge can correctly compensate for this value gap in the long run (near term cost shifts would still need to be addressed). How does this compare to a PPA? When a \$3/kW charge is placed on a system, rooftop solar on APS rates is in the same ballpark as an 8.5 cent/kWh PPA assuming a 30% export rate for rooftop solar production. More detail on this comparison is provided in our filing. The charge also corresponds to the distribution portion of the bill.

### **The Policy:**

Rooftop solar is a unique technology. It acts as a form of energy efficiency (with lower capacity value) during self-supply and as a generation source (with some intermittency) during electricity export. This

complicates the valuation of rooftop solar. However, other forms of DG technology, like rooftop, PV have production profiles with some producing at peak times and others less so. Without analyzing this important attribute policymakers are left blind when determining the real cost and benefit of a technology. For instance, should solar thermal technology get a higher incentive than south facing fixed tilt PV?

RUCO's policy starts to monetize these differences. As the capacity value for a certain DG technology decreases (for example, if peak load shifts into the night) it sends the correct price signal to the market based on the true value of additional capacity, which will encourage the installation of systems that produce more power at peak times and incentivize deployment of capacity from DG when warranted. As the market starts to send price signals, new technologies can be deployed to meet market demands. This could start with different orientations of panels and end with small storage units that carry energy a few hours into peak. Other possible areas of innovation that can be encouraged:

- Locational considerations (congested sub transmission zones)
- Tracking systems
- Smart inverters and other grid support devices

Some bonuses may also be given for system-wide effects of PV that benefit non-participants, as more data become available such as fuel price risk mitigation. How does this translate into policy?

- The charge should start at \$1/kW and move up over time.
  - RUCO believes that anything more aggressive than \$1/kW could start to trigger rapid declines in installs and significantly hurt the industry. Therefore, RUCO strongly recommends a gradual phase-in tied to market demand.
  - Once the market can handle a \$3/kW charge, rooftop solar is cost neutral (i.e. unsubsidized) to non-solar residential ratepayers over 20 years but near term cost shift remains.
- The charge needs to be locked in for 20 years (tied to system not homeowner). Meaning a customer who signs up in year one has a \$7 per month charge (for average system) locked for 20 years.
- The phase-in of the charge should be similar to how the ACC setup the incentive declines.
  - Every 20 MW triggers a \$0.50/kW increase to the LFCR charge.
  - For example, a 7 kW system would start at \$7 per month and then after the market reaches 20 MW, the charge for a new 7 kW system would go to \$10.50.
- Periodically the utility should determine the capacity value of solar PV using the method they readily use today in order to ensure that a \$3/kW charge is still appropriate to correct the long-term cost shift.

### **Outcomes for the Solar Industry:**

A fixed charge locked for 20 years is easy to understand from the consumer's standpoint and facilitates financing because the charge does not move for 20 years. As current technologies get analyzed and new beneficial technologies get introduced, regulators can form charges that decrease or become net credits depending on the value provided from these systems. Finally, rate plans that under-compensate can be corrected as necessary. This holistic policy covering multiple technologies and rate plans would not happen overnight but could be introduced over time.

RUCO believes this solution establishes a more level playing field between the rooftop solar and wholesale DG market segments.